

Total No. of Questions—21

Total No. of Printed Pages—3

Regd. No.

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Part III
CHEMISTRY

Paper II
(English Version)

Time : 3 Hours

Max. Marks : 60

Note :—Read the following instructions carefully :

- (i) Answer ALL the questions of Section A. Answer ANY SIX questions from Section B and ANY TWO questions from Section C.
- (ii) In Section A, questions from Sr. Nos. 1 to 10 are very short answer type. Each question carries TWO marks. Every answer may be limited to 2 or 3 sentences. Answer ALL these questions at one place in same order.
- (iii) In Section B, questions from Sr. Nos. 11 to 18 are of short answer type. Each question carries FOUR marks. Every answer may be limited to 75 words.
- (iv) In Section C, question from Sr. Nos. 19 to 21 are of long answer type. Each question carries EIGHT marks. Every answer may be limited to 300 words.
- (v) Draw labelled diagrams wherever necessary for questions in Section B and Section C.

SECTION A

10×2=20

Note :—Answer ALL questions.

1. What are Isotonic solutions ?
2. What is metallic corrosion ? Give one example.
3. What is vulcanization of Rubber ?
4. What is PHBV ? How is it useful to man ?

5. What is allosteric site ?
6. What are tranquilizers ? Give example.
7. Calculate the magnetic moment of a Divalent Ion in aqueous solution if its atomic number is 25.
8. Why is helium used in diving apparatus ?
9. Write the structures of XeO_3 and XeOF_4 .
10. What is blister copper ? Why is it so called ?

SECTION B

6×4=24

Note :—Answer any SIX questions.

11. Derive Bragg's equation.
12. Define mole fraction. Calculate the mole fraction of H_2SO_4 in a solution containing 98% H_2SO_4 by mass.
13. What are different types of adsorption ? Give any *four* differences between characteristics of these different types.
14. Give examples to differentiate Roasting and Calcination.
15. How does P_4 react with the following :
 - (a) SOCl_2
 - (b) SO_2Cl_2
16. Give the sources of the following vitamins and name the diseases caused by their deficiency :
 - (a) A
 - (b) D
 - (c) E
 - (d) K
17.
 - (a) What is misch metal ? Give its composition and uses.
 - (b) What is a chelate ligand ? Give example.
18. Explain the mechanism of S_N^2 reaction with *one* example.

SECTION C

2×8=16

Note :—Answer any TWO questions.

19.
 - (a) What are Galvanic cells ? Explain the working of Galvanic cells with *one* example.
 - (b) Write the differences between order and molecularity of a reaction.

20. (a) How does ozone react with the following :

(i) PbS

(ii) C_2H_4

(iii) Ag

(iv) Hg.

(b) How is chlorine manufactured by Deacon's method ? How does it react with the following :

(i) Cold dil. NaOH

(ii) Hot. conc. NaOH.

21. Explain the following reactions with suitable examples :

(a) Williamson's synthesis

(b) Reimer-Tiemann reaction

(c) Cannizzaro reaction

(d) Sandmeyer reaction.